REMARKS

Claims 4 to 12 and 15 are pending in the application.

Rejection under 35 U.S.C. 103

Claims 4-12 and 15 stand rejected under 35 U.S.C. 103 (a) as being unpatentable over *Kennedy et al. (US 5,884,682)*.

The examiner argues that all four steps a) to d) of claim 15 are disclosed in the cited reference as the workpieces 12 are

- measured (scanner 14);
- transported sequentially from the scanner 14 to the sawing station (Fig. 6) while their position is monitored (photoeyes 45/46/43) and input to a control unit (18);
- cut into sections based on the measured results while the saw position is monitored and input into the control unit (18); and

the feed velocity of the workpieces is adjusted based on the input data so that the sequentially transported workpieces have a minimal spacing.

Applicant respectfully disagrees with examiner's interpretation. The first important difference between the present invention and the cited prior art reference is that the workpieces 12 of the cited reference are cut to boards in their longitudinal direction and thus in their transport direction. Accordingly, in the sawing station 16 several saw blades 52 are arranged adjacent to one another at a spacing so that the workpiece 12 when passing through the sawing station 16 is cut into individual boards.

In the method according to the invention, the pieces of wood are cut transversely to the longitudinal direction into at least two pieces. This is disclosed in the present invention in paragraph 0018. This is of course also apparent from Figs. 1 to 3.

The transverse cut necessitates that the pieces of wood 1 during the sawing process must be stopped briefly because the saw blade 5 otherwise could not perform a separating cut in the direction transverse to the transport direction; this is not expressly disclosed in the specification but is a logical consequence of the cutting direction.

The method according to the cited reference is directed to cutting workpieces 12 into individual boards in such a way that the workpiece, even when curved, can be utilized in an optimal fashion. For this purpose, each workpiece 12 passes a scanning device 14.

As disclosed in col. 10, lines 36-39, the scanner 14 serves for determining the contour of the workpiece across its length. As further disclosed in this reference, a mathematical model of the workpiece 12 is generated and based on the mathematical model the sawing station 16 performs the cuts in an optimized way. The mathematical model of a workpiece 12 is illustrated in Fig. 1a.

In the method according to the present invention no mathematical model of the workpiece is created; instead, the workpiece is scanned with regard to different qualities and flaws that are to be removed in the sawing station 3 from the workpiece 1. This is disclosed in the specification in paragraph 0019 in detail. The recognized different qualities and flaws are saved in a computer in a so-called cutting list based on which the sawing station 3 cuts the pieces of wood 1 to the required size. The sections of different qualities and/or flaws are removed in that the piece of wood 1 is cut at the marked locations transversely to its longitudinal direction and thus transversely to the transport direction. The sawing station thus produces waste material that does not have the desired quality or that has flaws.

The method of the present invention and the method of *Kennedy* are based on different principles and are directed to different tasks.

In order to be able to perform the method according to the invention, it is required that the feed of the pieces of wood 1 into the sawing station is decoupled from the drive action within the sawing station 3. By decoupling the feed action for feeding pieces of wood 1 into the sawing station 3 from the transport within the sawing station, it is possible for the trailing pieces of wood to be transported into the sawing station 3 already when a piece of wood is still being sawed in the sawing station. In this way, it is possible to minimize the spacing between sequentially transported pieces of wood within the sawing station. Examiner's attention is respectfully directed again to the **exhibit in the form of a video clip on compact disc** submitted December 1, 2006 (received in the Office on December 4, 2006). This video clip demonstrates very well the operation of the inventive method and its advantages.

This decoupling action has the goal of minimizing the spacing in the sawing station between sequentially transported pieces of wood. Such a feature is not disclosed in the

cited prior art reference. In col. 22, lines 5ff, of the patent to *Kennedy*, the method of cutting in the sawing station 310 (or 16 in Fig. 1) is disclosed. Accordingly, the pieces of wood 316 are first transported by the transport device 376 that is in front of the sawing station 310. On the transport device 376 the pieces of wood 316 are aligned on a slantedly positioned guide whose slanted position is determined in accordance with the previously determined mathematical model of the workpiece. In col. 22, lines 21ff, of *Kennedy*, it is disclosed that the press rolls 378 in the sawing station 310 are lowered in sequence as the leading end of the piece of lumber 316 reaches and passes through the sawing station 310. When the workpiece 316 approaches the saw blades 424 the motion controller 22 reduces the spacing in the direction C" between the oppositely positioned steering rolls 386, 388 according to the determined profile and the rolls 392, 394 are pressed against the sides of the piece of lumber. The pressure applied by the rolls 392, 394 is applied in accordance with the profile (mathematical model) determined by the optimizer 24. As disclosed in col. 22, lines 62ff, the controller 22 terminates its control action based on the profile when the trailing end of the workpiece leaves the sawing station 310. At this point in time, the rolls 392, 394, 386, 388 are retracted also.

Based on the disclosed movement sequence it is apparent that the second workpiece following the first workpiece that is momentarily being cut in the sawing station is not transported into the sawing station 310 while the first workpiece is still being sawed. This is obvious because the workpieces supplied to the sawing station all differ with regard to their curvature, profile, and slant angles during transport. As shown in Fig. 19 of *Kennedy*, the slantedly positioned workpiece 316 is curved across its length. Accordingly, the steering rolls 386, 388 and the rolls 392, 394 must always be adjusted to the different curvature and profile of the timber to be sawed. Since the rolls are located directly in front of the saw blades 424 (Fig. 18 and Fig. 22), the next piece of timber cannot be introduced into the sawing station as long as there is still a workpiece being sawed. The rolls must first be positionally adjusted to the shape of the next workpiece in order to be able to laterally guide the workpiece during the sawing process. This new adjustment of the rolls is however possible only once the previous workpiece has left the sawing station 310. In col. 22, lines 62-66, of the cited reference it is disclosed that the controller 22 ends its

control action pursuant to the mathematical model only once the trailing end of the workpiece has left the sawing station in the transport direction. Accordingly, only thereafter the controller 22 transmits to the sawing station 310 the data of the next workpiece 316 to be sawed so that the rolls 378 as well as the lateral rolls 386, 388, 392, 394 can be positioned properly to match the contour of the subsequent workpiece 316.

This reference therefore cannot suggest that a minimal spacing of sequentially transported pieces of wood is to be provided. The opposite is true: In the sawing station 310 two workpieces cannot be present at the same time. The trailing workpiece must be positioned on the transport device 376 until the preceding workpiece has left the sawing station 310.

In regard to step d) of the claim 15, the examiner refers to col. 12, lines 17 to 19, of the cited reference as showing that a gap between subsequent workpieces may be adjusted. Applicant would like to point out that the critical minimization of the spacing of the sequentially transported pieces of wood in the present invention is **within the sawing station 3**. As discussed above, this is an important feature that is not disclosed in the cited reference to *Kennedy:* minimization of the gap **in the sawing station** is impossible because of the structure of the sawing station and its steering rolls, press rolls etc.

The cited text portion only discloses that the gap between sequentially transported pieces of wood, if necessary, can be **adjusted**. However, adjustment does not imply minimization and in particular does not imply or suggest that the spacing of sequentially transported pieces of wood is to be minimized within the sawing station. This text portion only indicates that apparently fixed distances ought to be adjusted in order to provide similar conditions, based on lumber length, full utilization of the drive motor and similar things, for approximately identical gaps between sequentially transported pieces of wood.

The gap minimization, as suggested in the present invention, requires that the transport speed must be adjusted constantly in order to keep the spacing within the sawing station of sequentially transported pieces of wood 1 as small as possible for each sawing operation that is to be carried out. During the sawing process in the sawing station 3 the piece of wood 1 is at rest until the sawing cut has been performed. Depending on the number of flaws marked on the piece of wood 1 two or more cuts must be performed. This

also determines the speed at which this piece of wood is transported through the sawing station 3: The more sawing cuts of the piece of wood 1 are required the slower the transport through he sawing station 3. In accordance with this, the feeding speed of the trailing piece of wood 1 must be adjusted constantly in order to keep the spacing at minimum.

Such a method is not disclosed in col. 12, lines 17 to 19, of the cited reference. The cited text portion only discloses that the spacing between sequentially transported workpieces can be set to a certain value. It is however not disclosed or suggested that this spacing is to be maintained at a minimum. In particular, this text portion does not disclose that the feed speed of the subsequently workpieces must be varied such that always a minimal spacing is provided.

In particular, this text portion also does not disclose that a gap control is to be carried out within the sawing station.

As disclosed above in detail, a spacing minimization cannot be done within the sawing station. The cited prior art reference therefore cannot make obvious the invention as claimed.

In order for the spacing between sequentially transported pieces of wood 1 within the sawing station to be minimized, the feed of the subsequently transported pieces of wood 1 must be variably controlled. The feed speed is thus controlled at all times in order to minimize the spacing between sequential pieces of wood. No such control is disclosed in the cited prior art reference.

In instant claim 4 it is claimed that the feed speed of the trailing piece of wood 1 must be calculated anew constantly. This measure is also not disclosed in the cited reference. The transport speed of the workpiece 316 is preset to a speed range for the measured density properties of the workpiece 316 or is directly dependent on the measured values of amperage of the drive motor (see col. 13, lines 15-18). This means that in the known method the transport speed of the pieces of wood 316 is controlled based on load. A constant new calculation of the transport speed for the purpose of reduction of the gaps between sequential pieces of wood does not take place.

In claim 5, the control of the speed for reduction of the spacing between sequentially

transported pieces of wood is claimed. As mentioned before, this feature is also not obvious from the cited prior art reference. The text portion according to col. 12, line 44, to col. 13, line 21, only discloses a control based on material properties or loading. This does not disclose the feature to keep at a minimum the spacing between subsequently transported pieces of wood within the sawing station.

Claim 6 claims that the feeding speed of the second piece of wood is controlled for minimization of the spacing. In the method according to *Kennedy*, synchronization is carried out: the text portion of col. 13, lines 22ff, discloses that the feed speed of the workpieces is varied as part of the "orchestration" of the machine centers and devices of the overall system. Thus, maximum performance of the entire system is to be achieved and the feed speed is maximized so that the processing centers are operated at their limit. This discloses an operating control of the device with regard to performance limits. This has nothing in common with the subject matter claimed in claim 6 where the feed speed is adjusted for the purpose of minimizing the distance between sequential pieces of wood.

The features of claims 9 and 10 are to be viewed under the aspect that, based on taking measurements, saving the results, and newly calculating the feed speed, the spacing of sequentially transported pieces of wood in the sawing station are to be minimized. Even though in the method according to *Kennedy*, the saved data are also used for varying the feed speed, the method step according to *Kennedy* is directed to reducing the transport speed in anticipation of an overload of the drive motors and not to minimize the spacing of sequentially transported pieces of wood in the sawing station.

In connection with the claim 11, the examiner states that it is known from the cited reference to supply the subsequent workpieces without interruption to the sawing station. This is incorrect. In col. 20, line 11, to col. 23, line 3, the method steps of *Kennedy* are discussed in detail. The workpieces 316 are stopped at several locations. For this purpose so-called chuckers are provided. It is therefore not true that the workpieces 316 are transported without interruption to the sawing station 310.

Reconsideration and withdrawal of the rejection of the claims under 35 USC 103 are therefore respectfully requested.

CONCLUSION

In view of the foregoing, it is submitted that this application is now in condition for allowance and such allowance is respectfully solicited.

Should the Examiner have any further objections or suggestions, the undersigned would appreciate a phone call or **e-mail** from the examiner to discuss appropriate amendments to place the application into condition for allowance.

Recognizing that Internet communications are not secure, I hereby authorize the USPTO to communicate with me concerning any subject matter of this application by electronic mail. I understand that a copy of these communications will be made of record in the application file.

Authorization is herewith given to charge any fees or any shortages in any fees required during prosecution of this application and not paid by other means to Patent and Trademark Office deposit account 50-1199.

Respectfully submitted on February 13, 2008,

/Gudrun E. Huckett/

Ms. Gudrun E. Huckett, Ph.D.
Patent Agent, Registration No. 35,747
Schubertstr. 15a
42289 Wuppertal
GERMANY
Telephone: +49-202-257-0371
Facsimile: +49-202-257-0372
gudrun.draudt@t-online.de

GEH